

General Disclaimer

One or more of the Following Statements may affect this Document

- This document has been reproduced from the best copy furnished by the organizational source. It is being released in the interest of making available as much information as possible.
- This document may contain data, which exceeds the sheet parameters. It was furnished in this condition by the organizational source and is the best copy available.
- This document may contain tone-on-tone or color graphs, charts and/or pictures, which have been reproduced in black and white.
- This document is paginated as submitted by the original source.
- Portions of this document are not fully legible due to the historical nature of some of the material. However, it is the best reproduction available from the original submission.

A satellite photograph of Hurricane Frances, showing its characteristic eye and spiral cloud bands. Overlaid on the left side of the image is a map of the state of Florida, with its county boundaries clearly delineated. A white line points from the Kennedy Space Center area on the map to a text box. The text 'Bahama Is.' is visible in the lower right portion of the image, near the hurricane's outer edge.

John F. Kennedy Space Center, FL Hurricane Frances Damage Assessment Photos

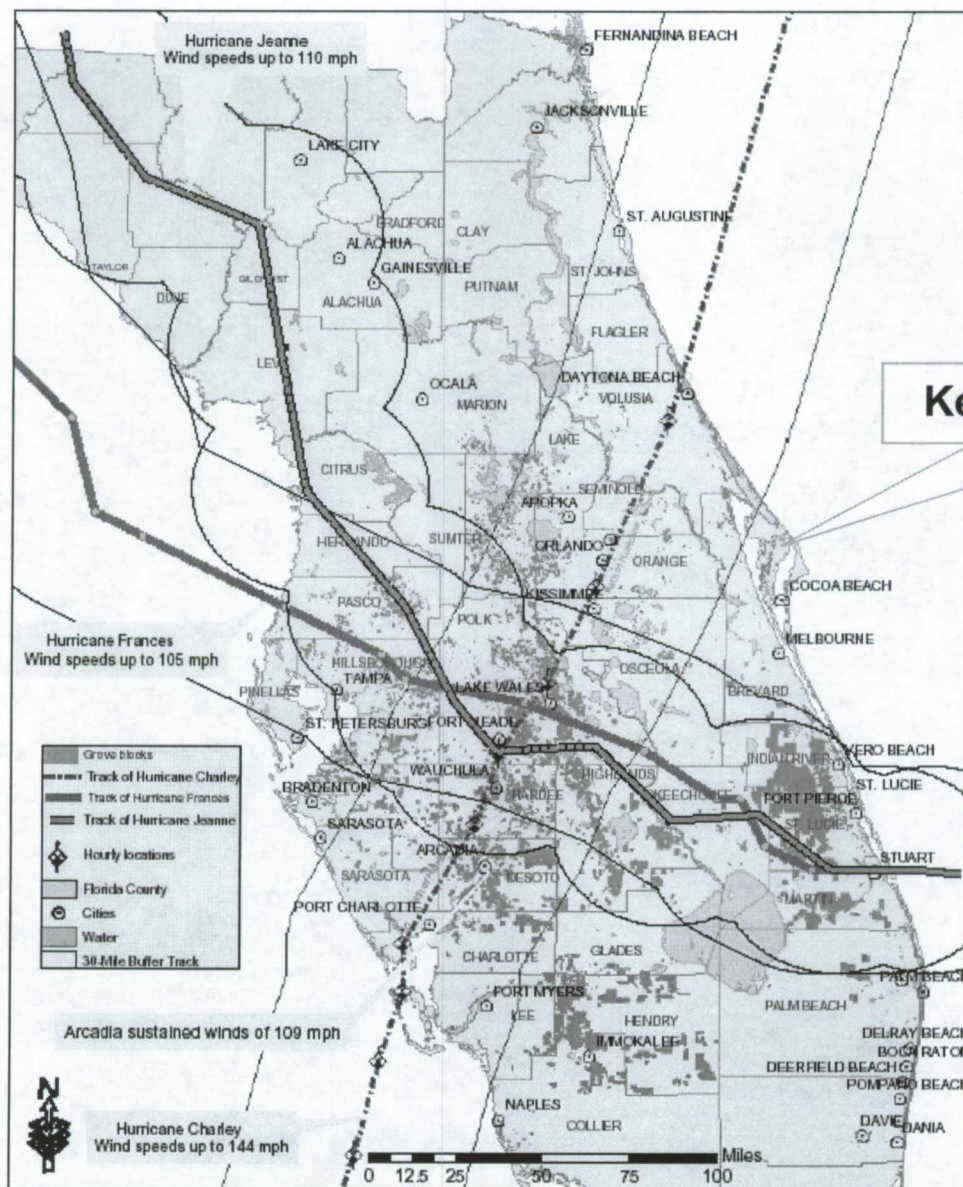
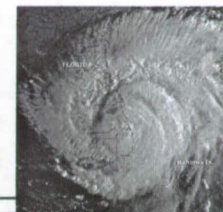
Kennedy Space
Center

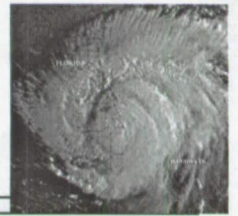
Bahama Is.

Credit: NOAA



John F. Kennedy Space Center Hurricane Frances Damage Assessment Photos



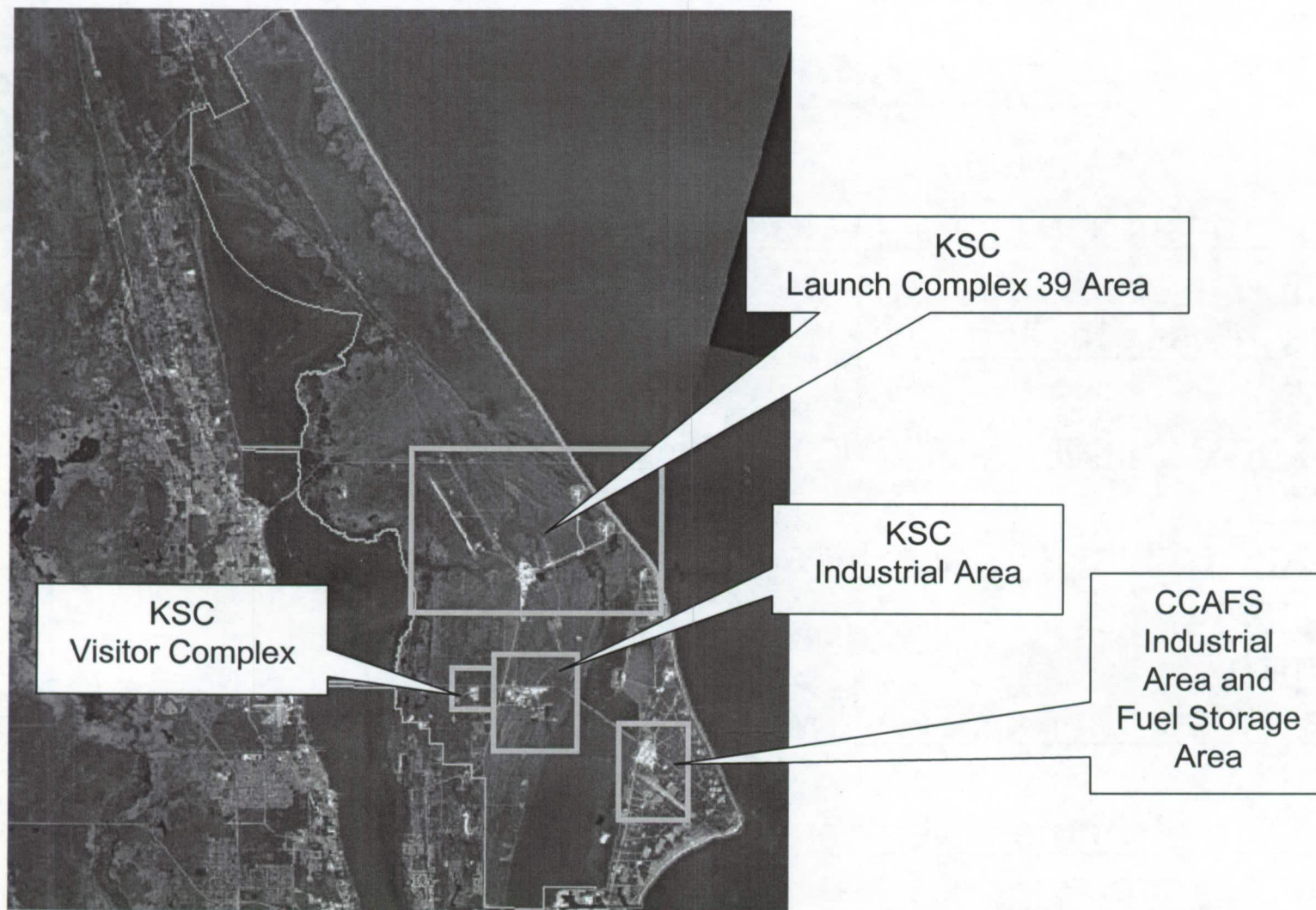


Wind Speed Reference

- 25 - 31 mph
 - Large Branches in motion; whistling in telephone wires.
- 32 - 38 mph
 - Whole trees in motion.
- 39 - 54 mph
 - Twigs break off of trees; wind impedes walking.
- 55 - 72 mph
 - Damage to chimneys and TV antennas; pushes over shallow-rooted trees.
- 73 - 112 mph
 - Peels surface off roofs; windows broken; mobile homes overturned.
- 113 + mph
 - Roofs torn off homes; weak buildings and mobile homes destroyed; large trees uprooted.

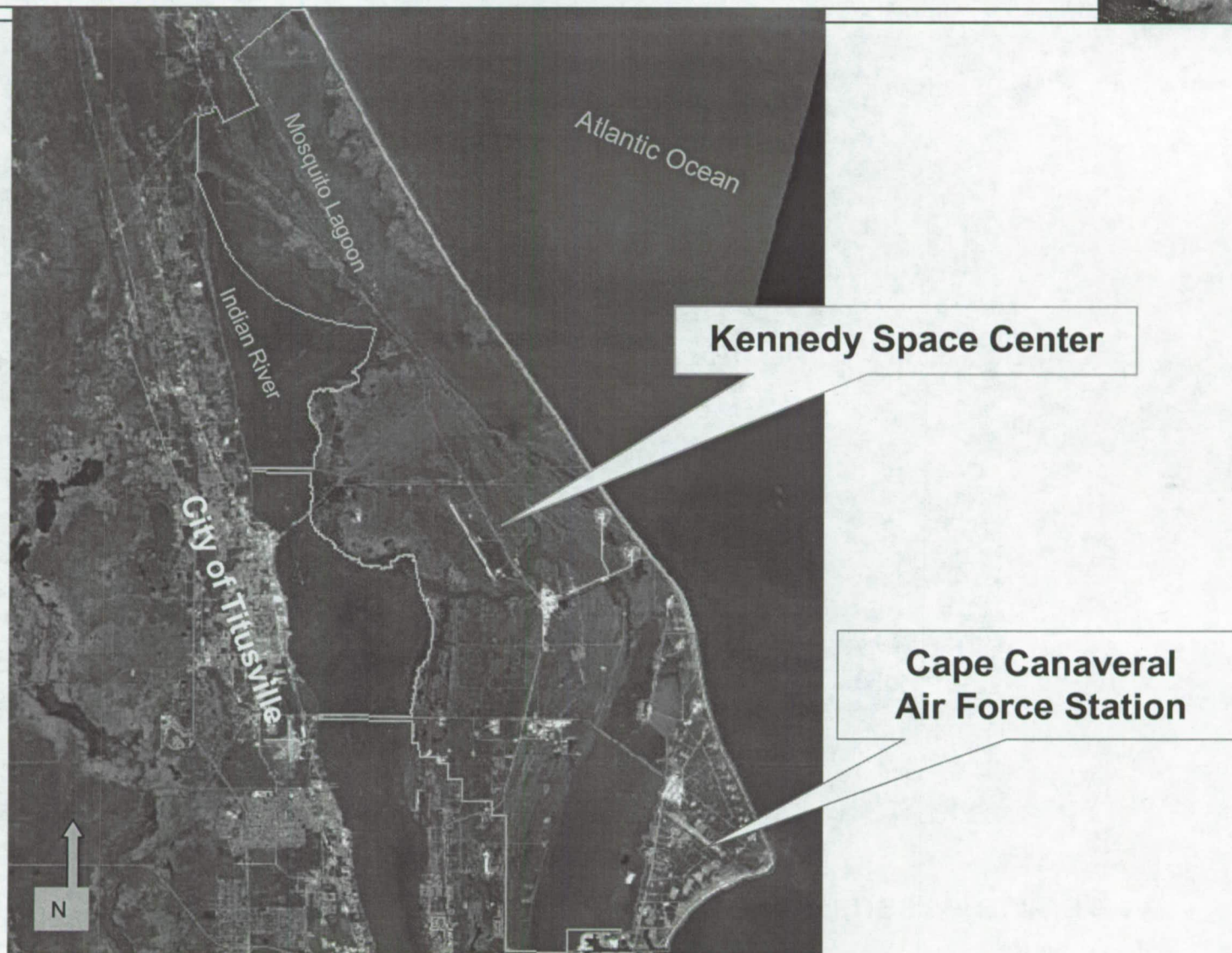
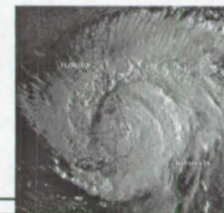


John F. Kennedy Space Center Hurricane Frances Damage Assessment Photos





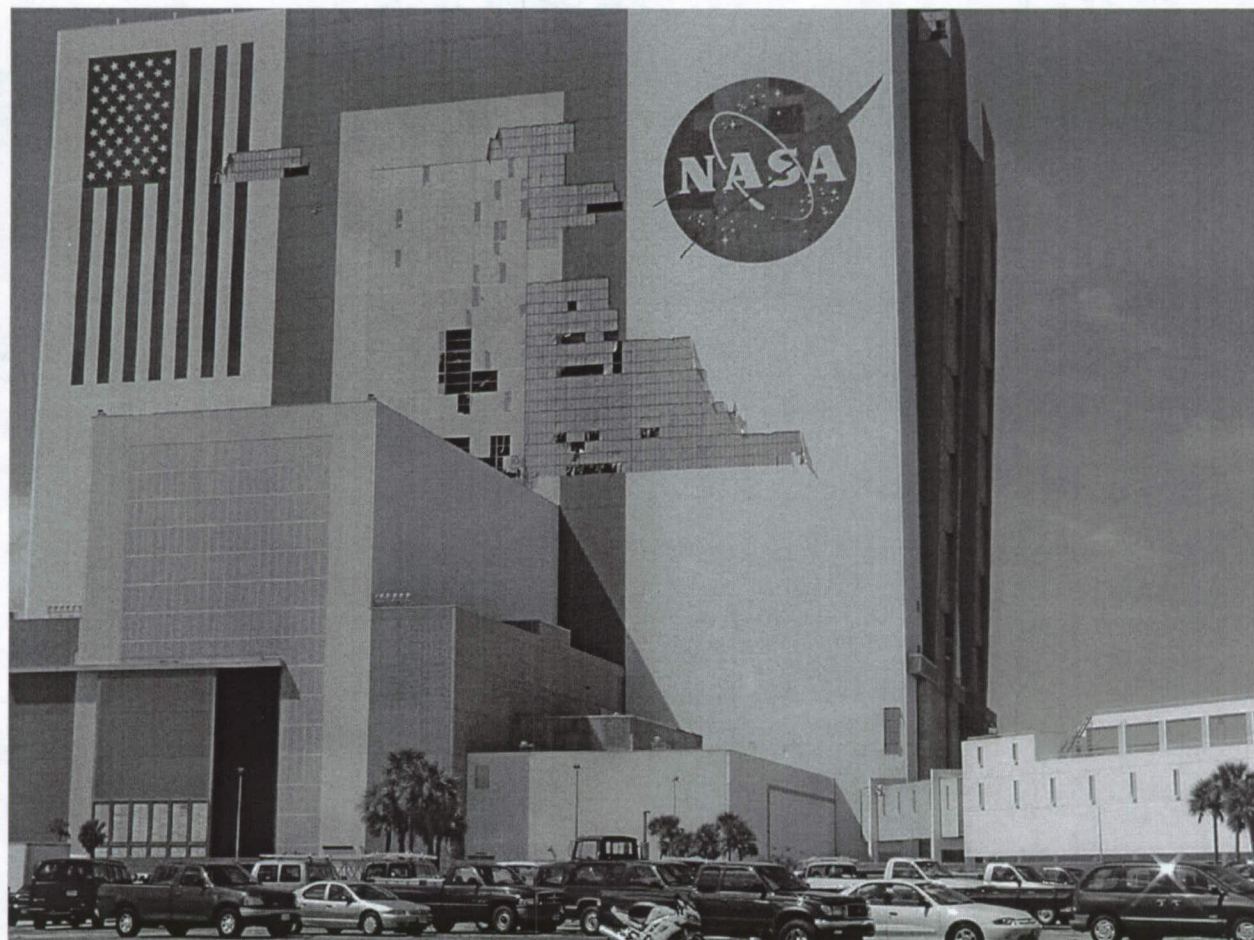
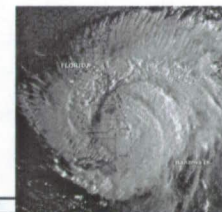
John F. Kennedy Space Center Hurricane Frances Damage Assessment Photos



© [2003] CNES, Licensed by SPOT Image Corporation, Chantilly, Virginia



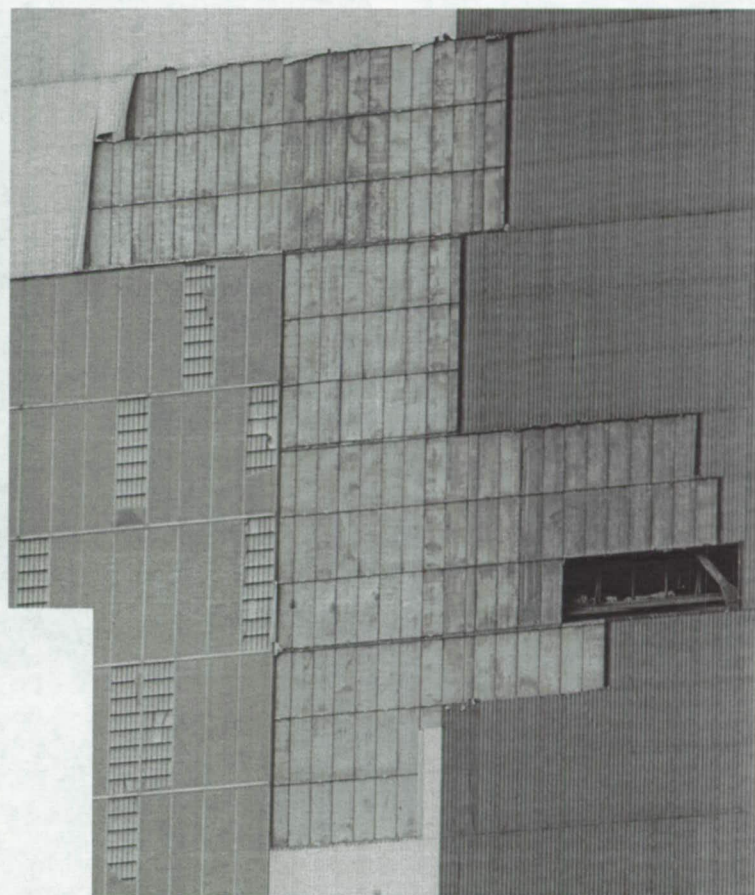
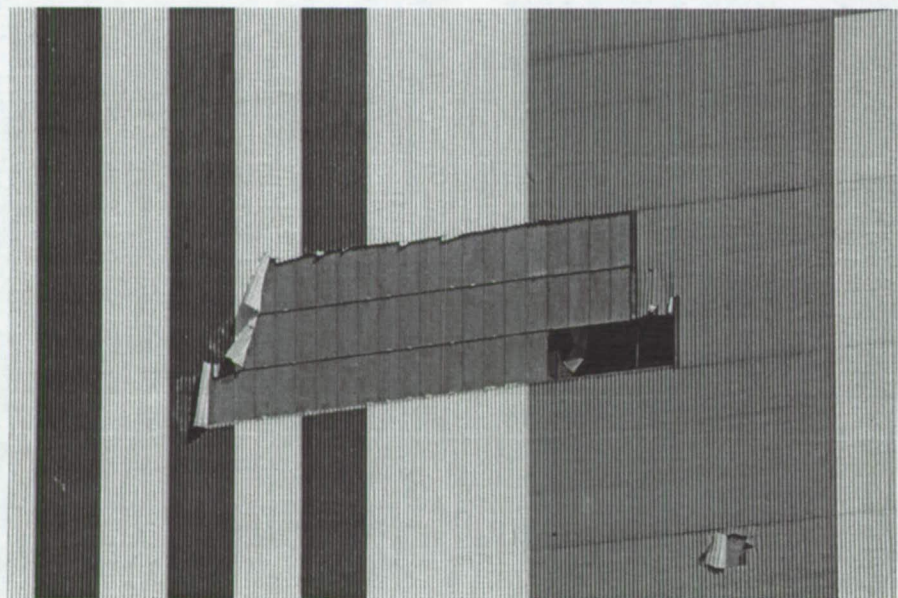
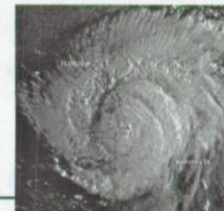
John F. Kennedy Space Center Hurricane Frances Damage Assessment Photos



Vehicle Assembly Building (VAB) (K6-0848) – exterior panel damage
(south side)



John F. Kennedy Space Center Hurricane Frances Damage Assessment Photos

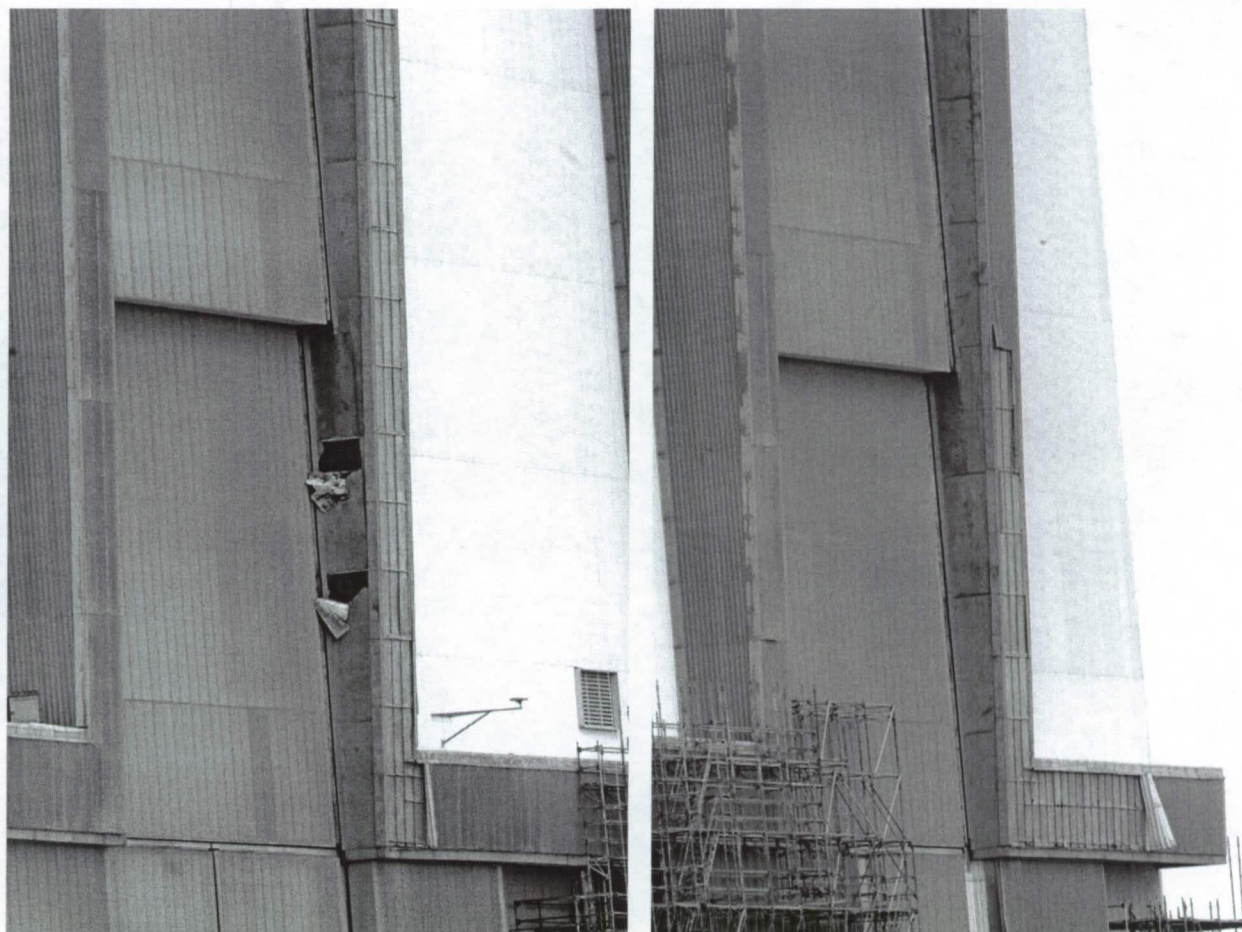
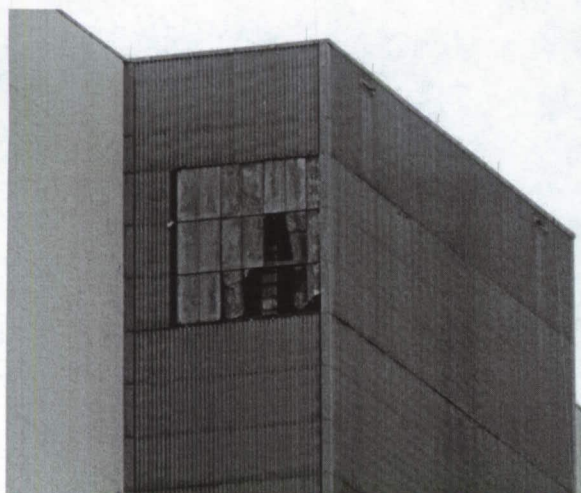
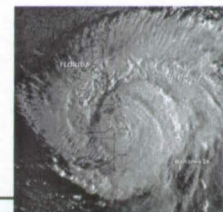


LC39 Area:

Vehicle Assembly Building (VAB) (K6-0848) – side panel damage above low bay south side



John F. Kennedy Space Center Hurricane Frances Damage Assessment Photos

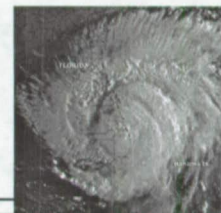


LC39 Area:

Vehicle Assembly Building (VAB) (K6-0848) – panels near east side doors damage



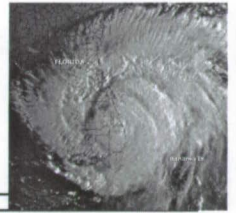
John F. Kennedy Space Center Hurricane Frances Damage Assessment Photos



Vehicle Assembly Building (VAB) (K6-0848) – debris pile from exterior panels



John F. Kennedy Space Center Hurricane Frances Damage Assessment Photos

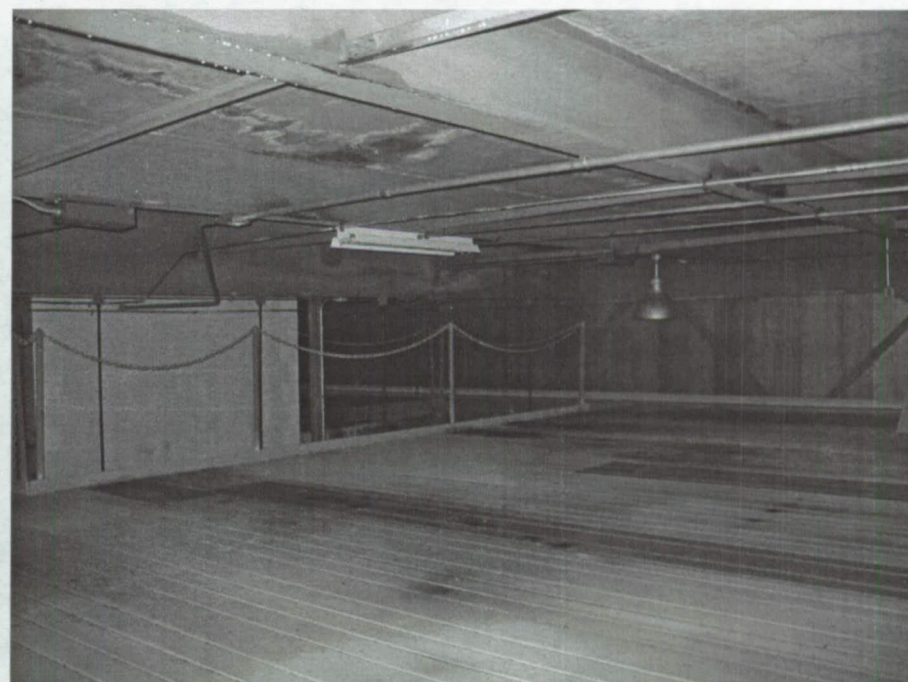
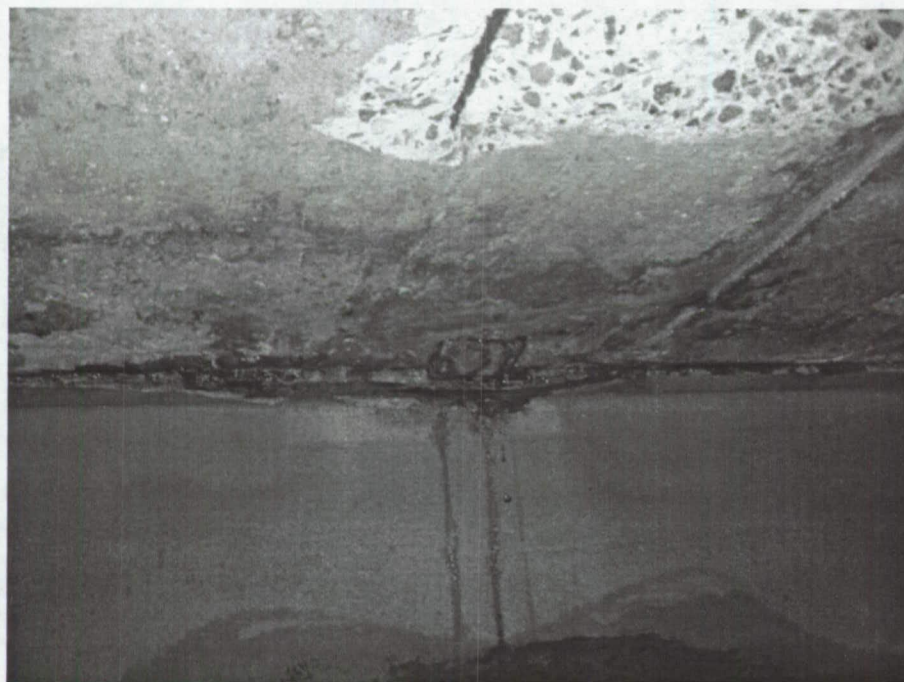
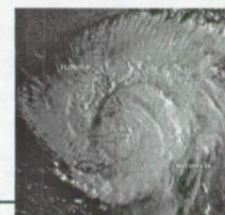


LC39 Area:

Vehicle Assembly Building (VAB) (K6-0848) – exterior roof damage



John F. Kennedy Space Center Hurricane Frances Damage Assessment Photos

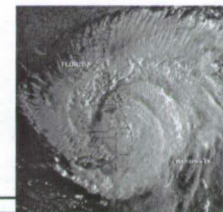


LC39 Area:

Vehicle Assembly Building (VAB) (K6-0848) – interior roof damage



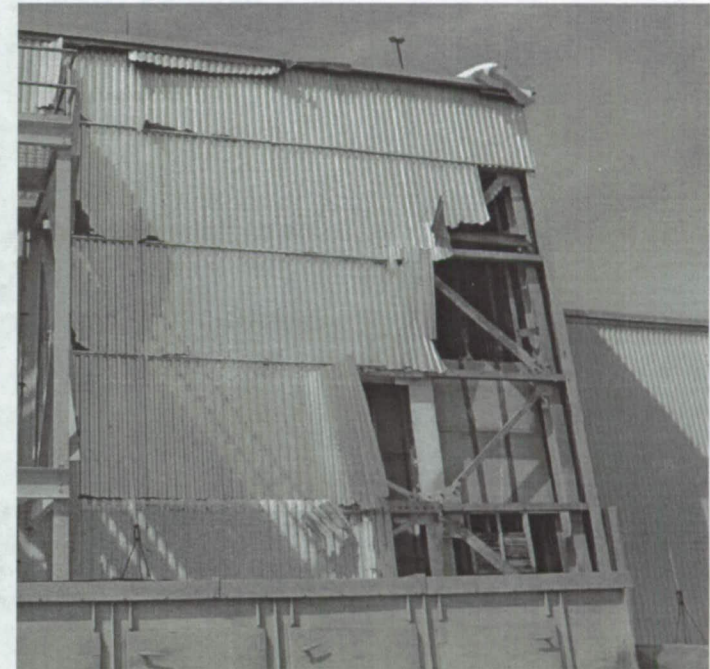
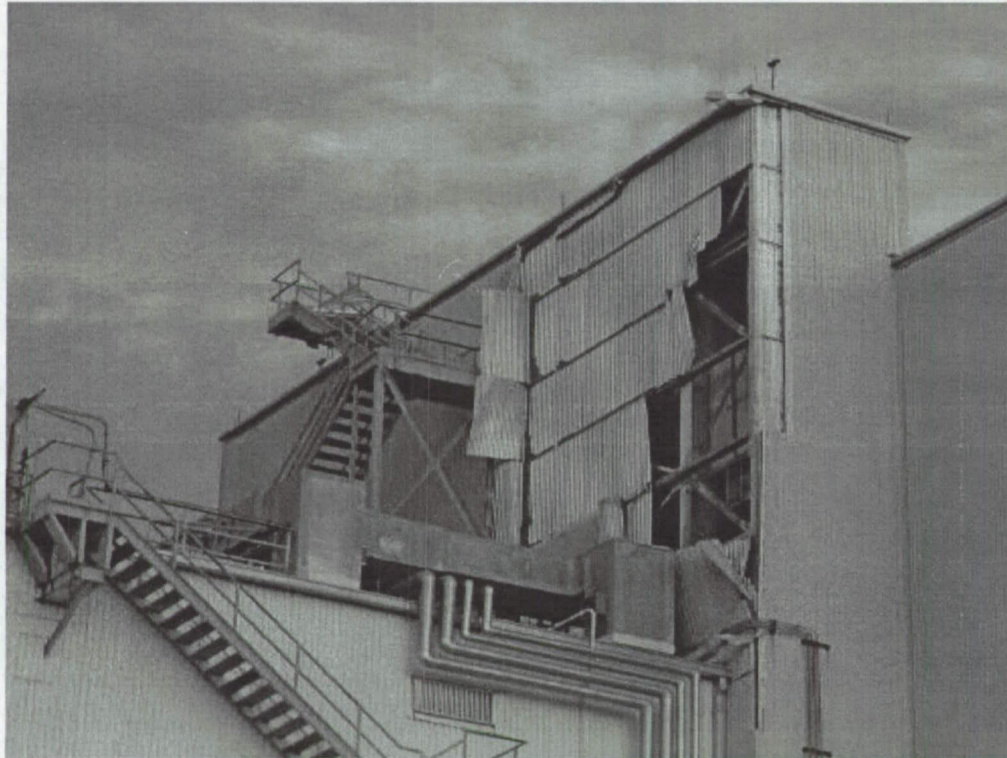
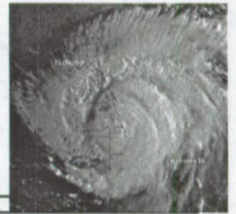
John F. Kennedy Space Center Hurricane Frances Damage Assessment Photos



NASA facilities on Cape Canaveral Air Force Station
Hangar AE (60680) – SE corner exterior



John F. Kennedy Space Center Hurricane Frances Damage Assessment Photos

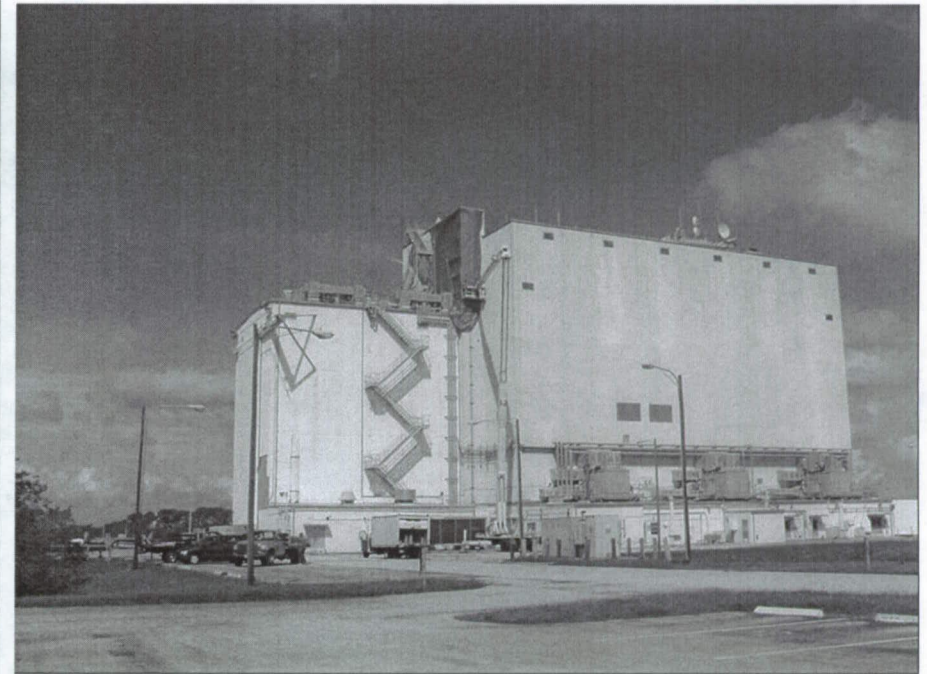
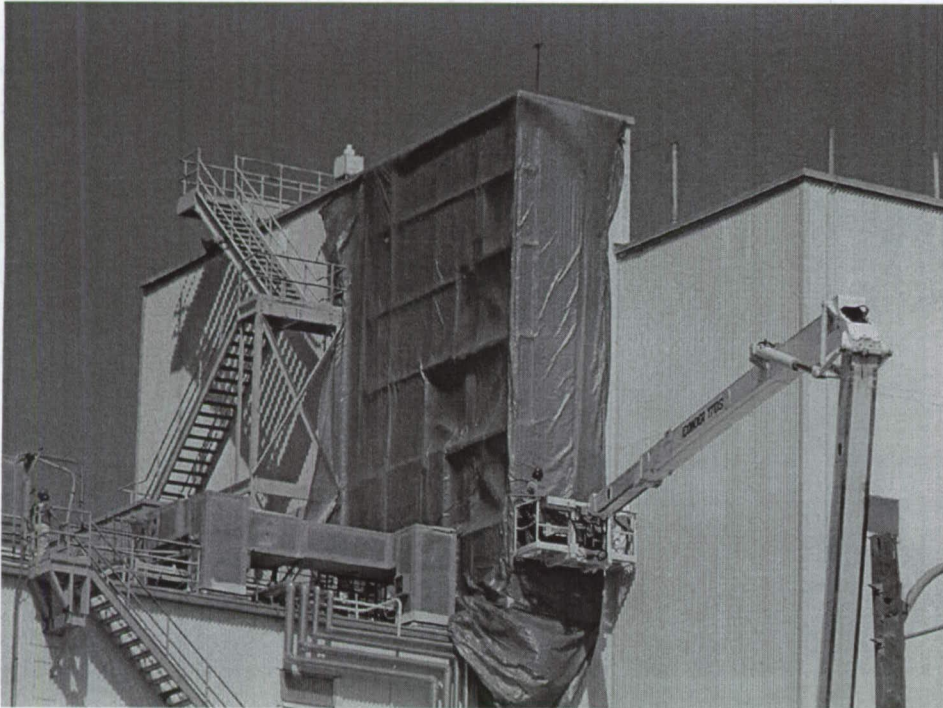
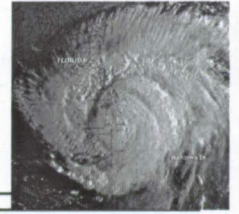


KSC Industrial Area

Vertical Processing Facility (VPF) (M7-1469) – Side panel damage south side



John F. Kennedy Space Center Hurricane Frances Damage Assessment Photos

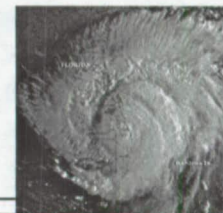


KSC Industrial Area

Vertical Processing Facility (M7-1469) – tarps cover panel damage



John F. Kennedy Space Center Hurricane Frances Damage Assessment Photos



SWIFT payload
prepared for
hurricane.



John F. Kennedy Space Center Hurricane Frances Damage Assessment Photos

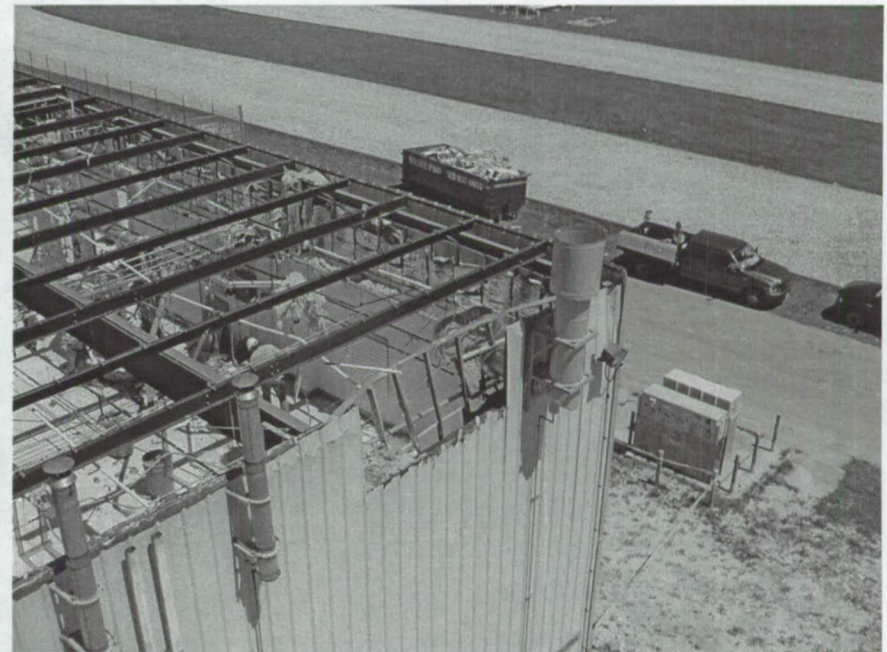
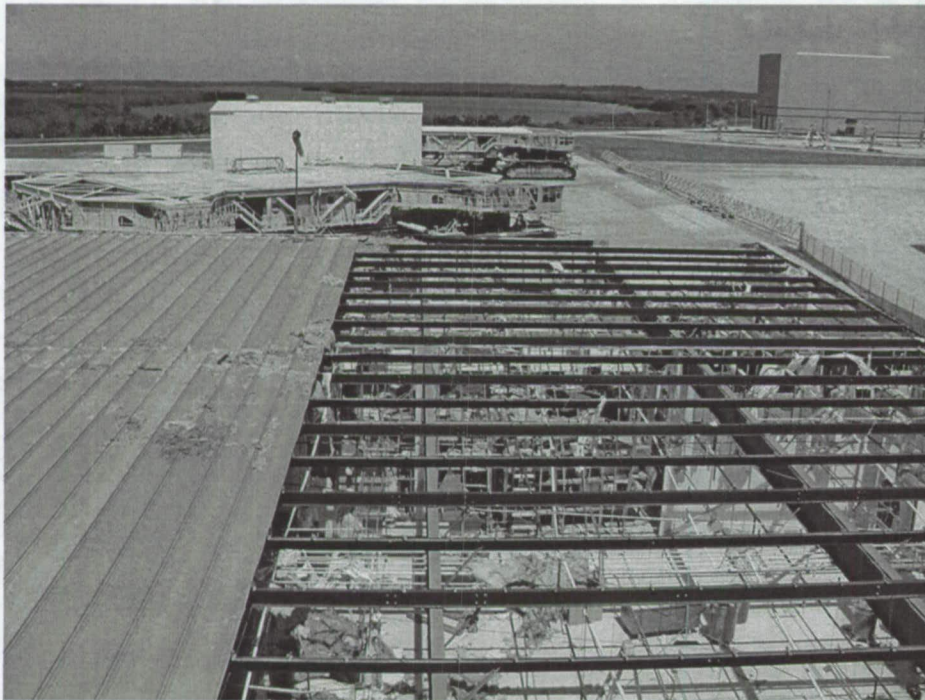
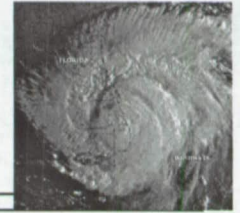


Launch Complex 39 Area

Thermal Protection System Facility (TPSF) (K6-0744) – extensive roof damage on 2nd floor east end of facility



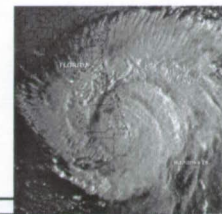
John F. Kennedy Space Center Hurricane Frances Damage Assessment Photos



Launch Complex 39 Area
Thermal Protection System Facility (TPSF) (K6-0744) – extensive
roof damage on 2nd floor east end of facility



John F. Kennedy Space Center Hurricane Frances Damage Assessment Photos

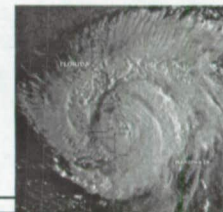


Launch Complex 39 Area

Thermal Protection System Facility (TPSF) (K6-0744) – interior damage
– 2nd floor soft goods area



John F. Kennedy Space Center Hurricane Frances Damage Assessment Photos

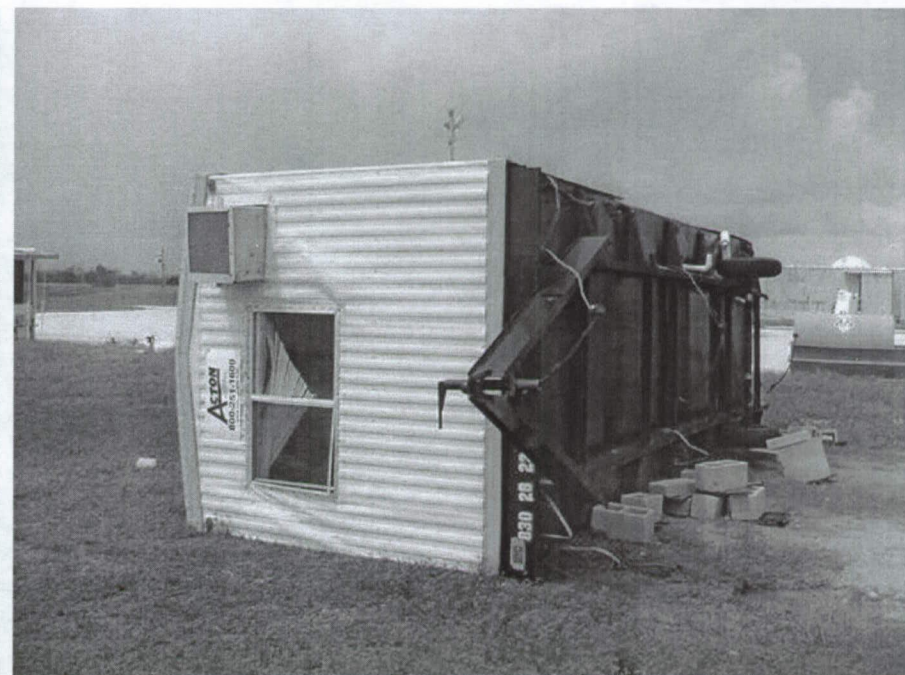
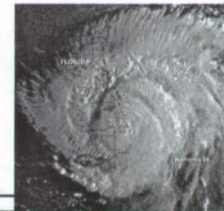


Launch Complex 39 Area

Thermal Protection System Facility (TPSF) (K6-0744) – interior damage



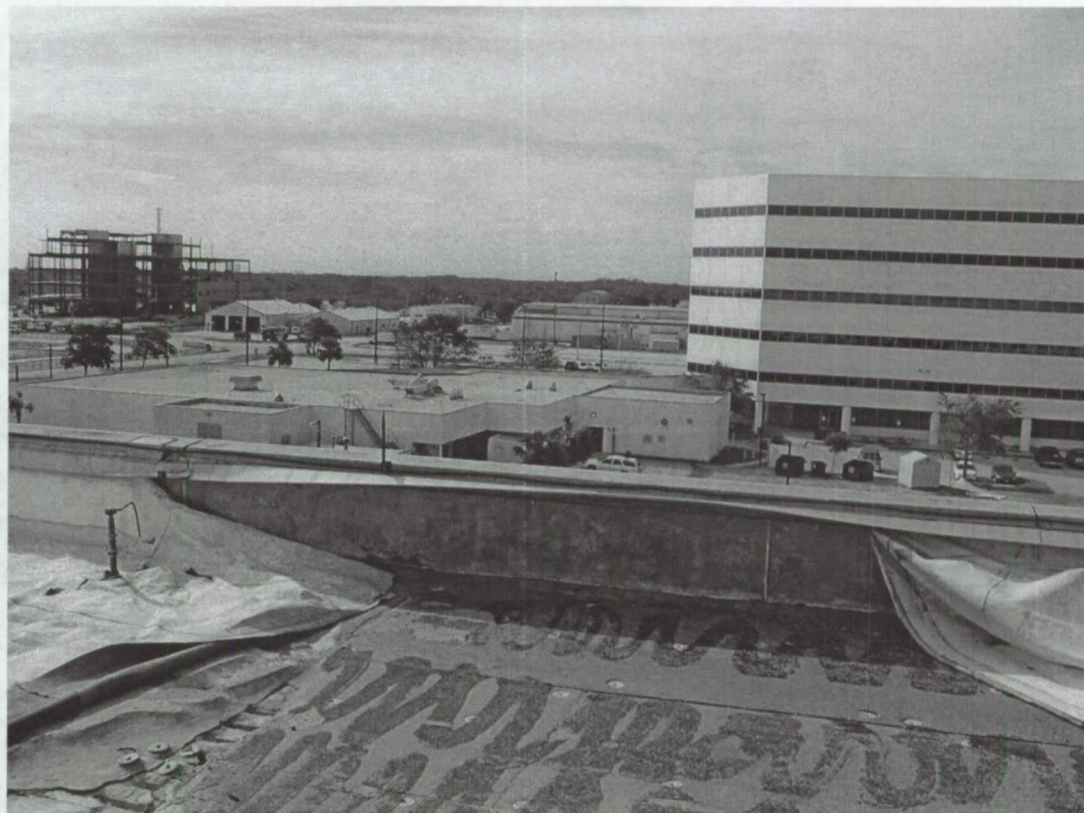
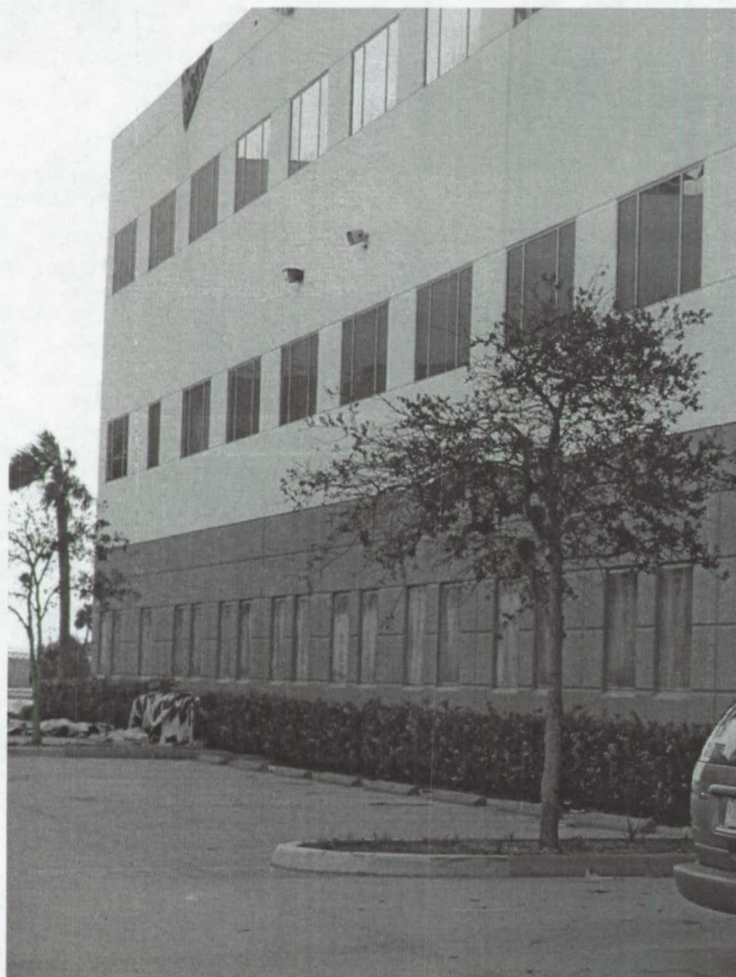
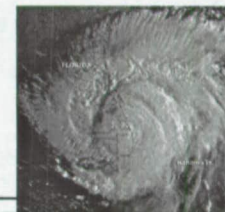
John F. Kennedy Space Center Hurricane Frances Damage Assessment Photos



Trailers at various construction sites overturned



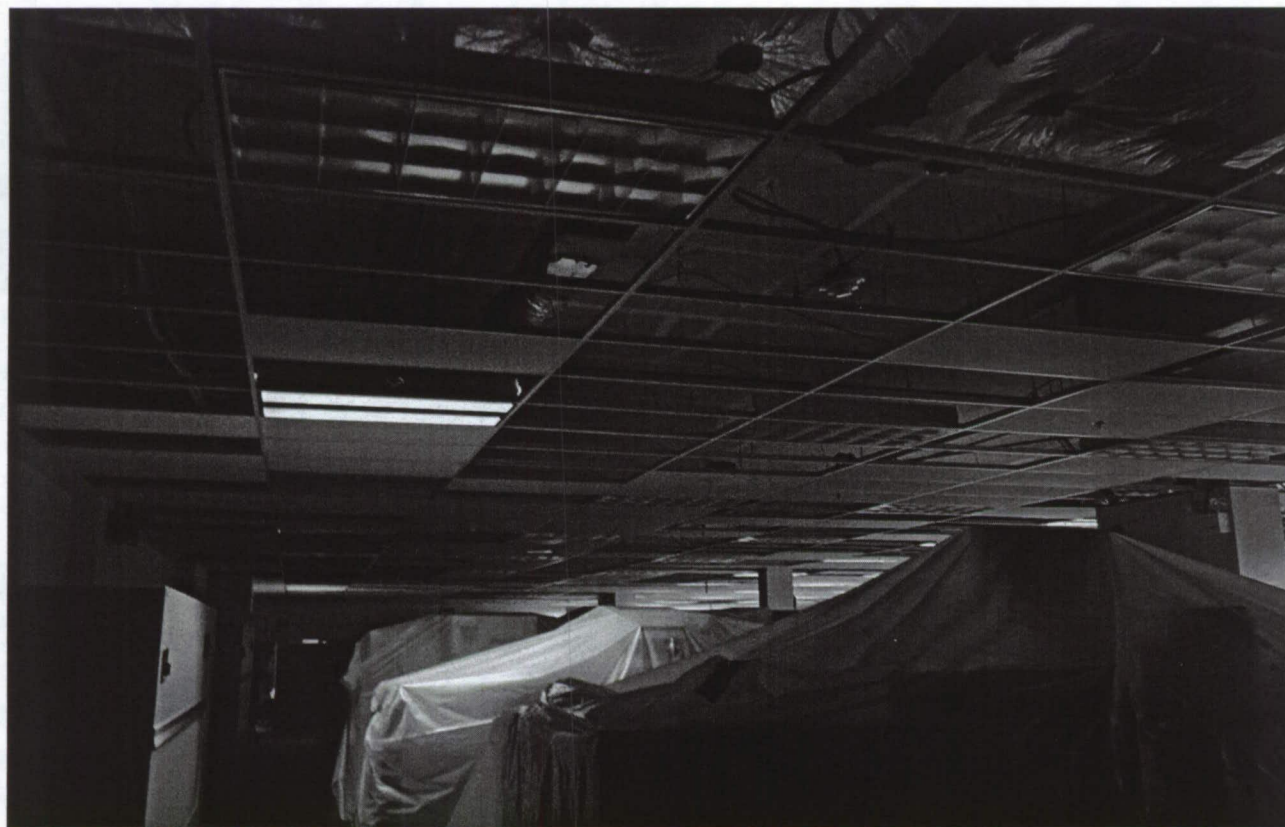
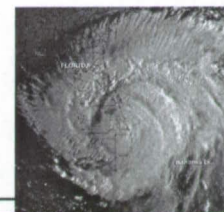
John F. Kennedy Space Center Hurricane Frances Damage Assessment Photos



Launch Complex 39 Area
Processing Control Center (PCC) (K6-1094) – exterior roof damage (roof
on ground in left photo)



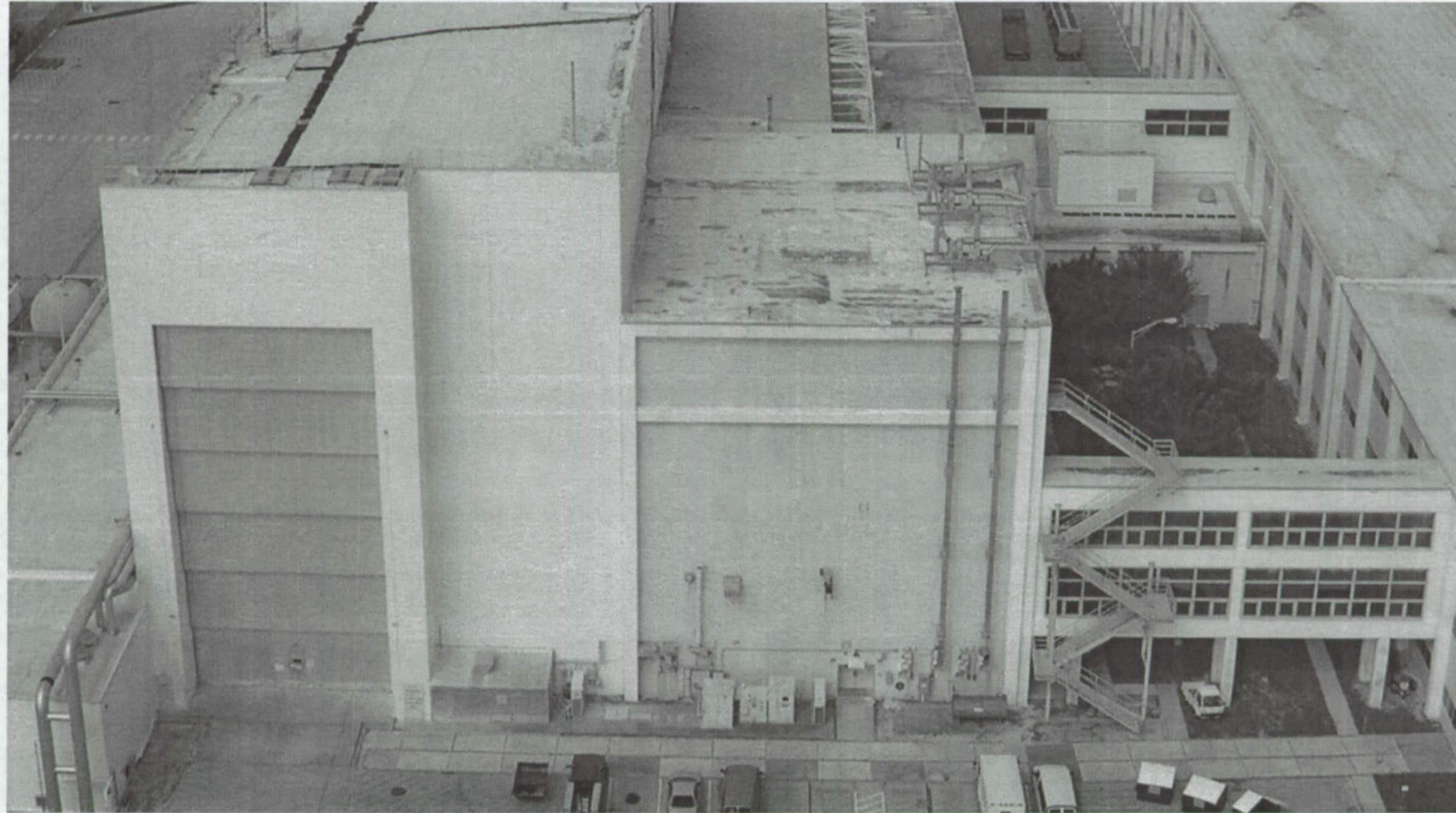
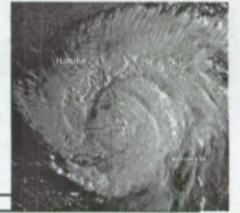
John F. Kennedy Space Center Hurricane Frances Damage Assessment Photos



Launch Complex 39 Area
Processing Control Center (PCC) (K6-1094) – interior damage



John F. Kennedy Space Center Hurricane Frances Damage Assessment Photos

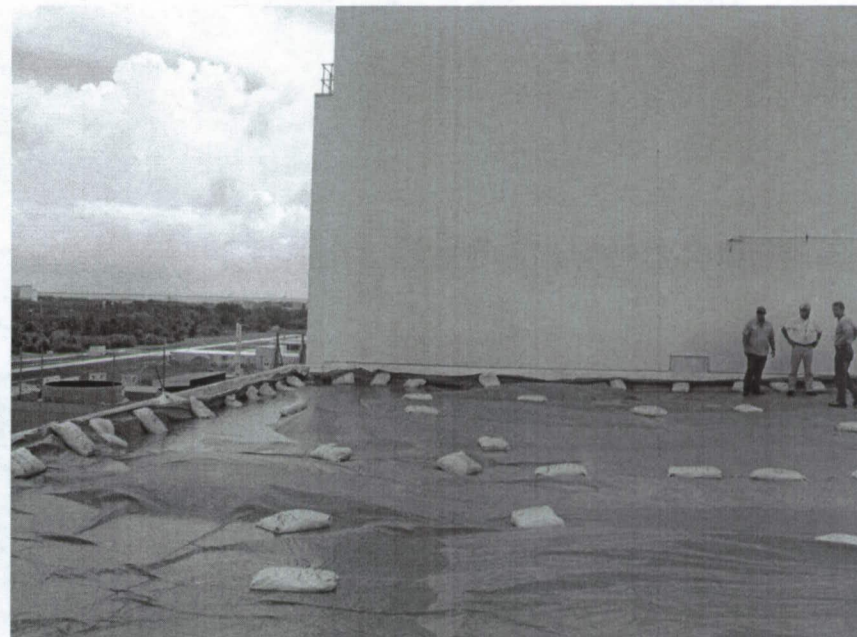
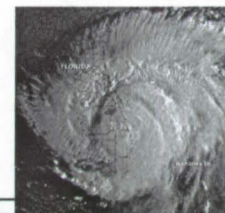


KSC Industrial Area

Operations and Checkout (O&C) Building (M7-0355) – initial exterior roof damage east end high bay and 5th floor (covered with visqueen)



John F. Kennedy Space Center Hurricane Frances Damage Assessment Photos



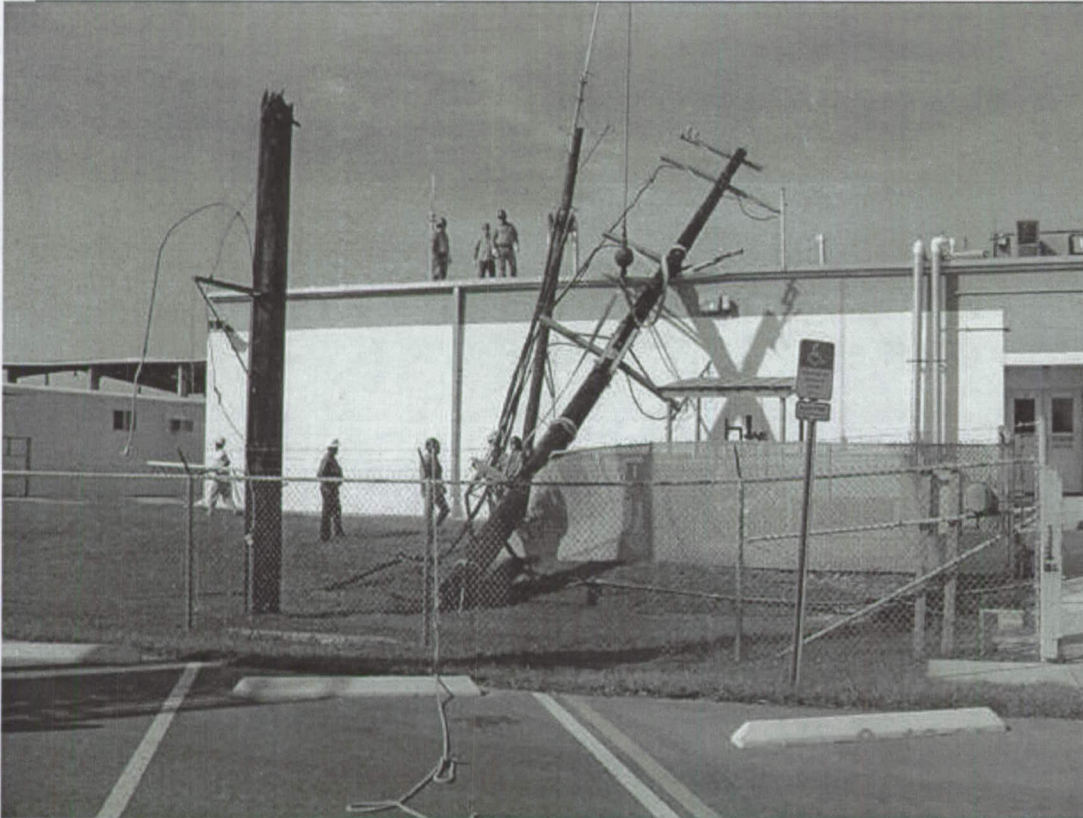
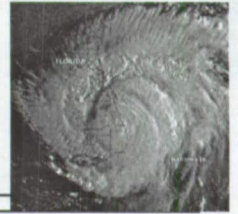
KSC Industrial Area

Operations and Checkout (O&C) Building (M7-0355)
– tarps cover roof on east end





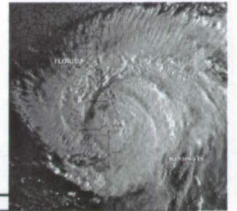
John F. Kennedy Space Center Hurricane Frances Damage Assessment Photos



Launch Complex 39 Area

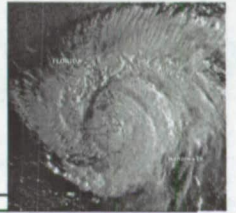
Shuttle Landing Facility

Landing Aids Control Building (J6-2313) – power/communications pole
damage, exterior roof damage



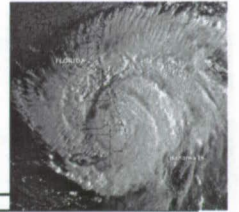
KSC Hurricane Approach

The NASA Hurricane Executive Management Team (EMT) is chaired by the Center Director and the Air Force 45th SW Battle Staff is chaired by the 45th SW commander or designee. They will jointly establish the hurricane condition (HURCON) applicable to KSC/CCAFS and the Florida Annexes. Once a HURCON has been declared, the primary Emergency Operation Center (EOC) will be activated and will effect appropriate announcements and notifications.



KSC Hurricane Approach

KSC utilizes the Incident Management System (IMS) structure which provides coordination and direction during emergencies. The Incident Commander (IC) is responsible for front-line management of the incident, for planning and execution, for determining whether internal and external assistance is needed, and for relaying requests for all support through either the 911 Center or the Emergency Operation Center (EOC). The IC for hurricanes is the Center's Emergency Preparedness Officer.



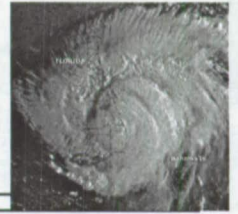
Hurricane Preparation

KSC uses a Phase approach in preparation for a forecasted storm strike based on preparation time.

- Hurcon IV 50-Knot/58-MPH winds within 72 hours
- Hurcon III 50-Knot/58-MPH winds within 48 hours
- Hurcon II 50-Knot/58-MPH winds within 24 hours
- Hurcon I 50-Knot/58-MPH winds within 12 hours

These are decision based points in determining adequate preparation activities such as:

- The securing and safing of high value flight hardware.
- The implementation of facility configuration for ride-out/center closure.
- The establishment of critical systems maintainability.
- The release of personnel based on organizational as well as personal needs.



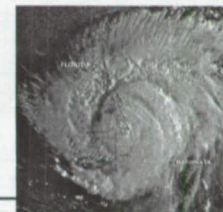
Hurricane Emergency Preparedness

Emergency Operations Center (EOC) – This is the control center that is activated by the Center Director to manage the KSC Hurricane response starting with the preparation and continuing through the recovery process. This team is comprised of critical organizational representatives to manage and control efforts such as control of critical functions, assessment and analysis, offer recommendations to the Center Director such as return to work. It is the communications center for information to the work force, to the community, as well as to the Center Director.



Hurricane Emergency Preparedness **(Continued)**

Ride-out Team – This Team is pre-selected and comprised of critical skills and personnel to assist in maintaining critical systems (such as electricity, environmental controls, temperature controls etc.) to protect critical flight hardware and facilities during the hurricane if possible. This team may not be utilized during Hurricanes of the magnitude of Category 3 or greater in strength on the Saffir/Simpson Scale due to the potential of extensive to catastrophic damage.



Hurricane Emergency Preparedness **(Continued)**

Damage Assessment Recovery Team (DART) – These Teams are comprised of critical organizational representatives for the purpose of assessing damage to their affected areas/facilities. These DART Teams represent the Shuttle Program, ISS Program, ELV Program, Payloads Program, and Institutional areas. They work through the EOC in reporting damage assessment for senior management to act on relevant to protection of personnel, facilities, equipment, flight hardware and other high value items.